PART 4 — CONTEXT

THE PRESENT

TWO SYSTEMS OF CLASSIFYING MICHIGAN'S ROAD NETWORK

JURISDICTION UNDER ACT 51:
Michigan "Legal" Systems

Fundamental to any discussion of transportation funding in Michigan is an understanding of the size, scope, variety, and importance of the transportation systems in question.

Michigan has just over 119,000 miles of highways, roads, and streets, maintained by one of three jurisdictions, either Michigan Department of Transportation (MDOT), a county road commission or other county agency, or a city or village. They are further divided into five "legal systems" for funding through the formulas of Act 51.

Route Mileage and Vehicle Miles Traveled by Legal System

Legal System	Route Miles	Percent of State Total	Annual Vehicle-miles Traveled (AVMT) in millions	Percent of State Total	1999 Share of State Road Funding
State Trunklines	**9,725**	**8%**	**49,986**	**55%**	**39%**
County Primary Roads	26,363	22%	22,748	25%	
County Local Roads	62,811	53%	3,458	4%	
County Subtotal	**89,174**	**75%**	**26,206**	**29%**	**39%**
City & Village Major Streets	5,923	5%	12,690	14%	
City & Village Local Streets	14,577	12%	2,733	3%	
City & Village Subtotal	**20,500**	**17%**	**15,423**	**17%**	**22%**
State Total	**119,399**	**100%**	**91,616**	**100%**	**100%**

Sources: Highway Performance Monitoring System data for June, 1999 and 1999 MDOT Sufficiency Report

The figures in the above table show that the legal systems of state trunklines, county primary roads, and city major streets carry most of the vehicle-miles of travel, while county local roads and city local streets are relatively lightly used. Inevitably, the unit cost of carrying a vehicle-mile of travel on the local systems is higher than on the higher-use systems.

Michigan also has 10,718 highway bridges[1] in service on the 119,000 system. These bridges represent a range from 20 foot bridges and culverts to multi-lane freeway bridges. Such differences are best reflected using the deck area of the structure. The deck area of these structures is distributed this way, using 1999 data from the National Bridge Inventory:

Bridges and Bridge-deck Area by Legal Jurisdiction

Legal Jurisdiction	Number of Structures	Deck Area, Square Meters	Percent
State Trunklines	4,319	4,316,340	75%
County Roads and City Streets	6,399	1,428,388	25%
Total	10,718	5,744,728	100%

Each eligible segment of roadway (road and bridge) funded from the Michigan Transportation Fund is assigned to one of the legal systems described in Act 51. Because the system miles figure in the distribution of funds, system mileages are carefully recorded on certified maps and tables by MDOT; these also must be checked to see that nonexistent or abandoned roads are not included. County Primary Roads are selected by county road commissions, subject to approval by the Michigan Transportation Commission; all other roads are part of the County Local System. City major streets are selected by a municipality's governing body, subject to approval by the Michigan Transportation Commission; all other streets are city local streets. For more information on the criteria used to identify county primary roads and city major streets, see Appendix D, page 143.

Non-Act 51 Roads

In addition to the five "legal" systems, there are other roads open to public use, at least under some circumstances, that do not receive direct distributions under Act 51.

[1] This figure only includes those highway bridges which are 20 feet or greater in length; it does not include pedestrian or railroad bridges.

- *Abandoned county roads* may not be currently maintained and are not "certified" under Act 51, but may still be passable. These miles do not figure in the distribution of funds. (The size of this part of the system is unknown.)

- *Municipal alleys* are not included in municipal certified mileage.

- Many miles of *state park* and *state forest roads* are maintained by the Michigan Department of Natural Resources (MDNR). Local park authorities may also maintain *local park roads*.

- *Federal access roads* provide circulation within national parks and forests and federally-owned facilities, such as military bases. (This mileage does not include Federal Forest Highways, which are state trunklines and county roads and are eligible for Act 51 funds, nor does it include "US" numbered highways, which are state trunklines.)

- *Private roads* in some residential developments (condominiums, subdivisions or cottage associations) or on commercial property (logging roads, industrial driveways, resorts, hospitals). Private roads are not eligible for MTF funds, and public use may be restricted.

- *Institutional roads* serve state-owned facilities such as universities and prisons. There are more than 200 miles of institutional roads in Michigan, not quite half of which are university roads. University or campus roads not included in city or county road systems are administered by the universities and, under Michigan law, their use may be restricted to students or others. Improvement and maintenance of university roads is mostly funded by the universities, but a state appropriation for the Michigan Institutional Road (MIR) program is also usable on these streets. The MIR program was established to implement the Access Roads and Bridges on State Property Act (PA 90 of 1941 MCL 250.91-92). State institutions including universities submit projects to the Department of Management and Budget (DMB), which administers the program per the act. Implementation of selected projects is coordinated by MDOT, but these roads are not included in state trunkline mileage. The program has been funded by an appropriation from the State Trunkline Fund of about $750,000 per year since 1979. Project selection is made by DMB, and university projects are accorded a high priority in the use of MIR funds.

- *Airport roads* are maintained by airport authorities to give access to their terminals.

NATIONAL FUNCTIONAL CLASSIFICATION

Independently of the "legal system" designations of Act 51, the Federal Highway Administration (FHWA) developed a planning and financial tool known as National Functional Classification (NFC). Used nationwide by road agencies since the 1960's, functional classification categorizes each road according to its function, along a scale between long-distance mobility and local property access. Most roads perform some of both functions.

- *Arterials* are roads which contribute most to statewide or regional mobility. Within this classification are all Interstate freeways, other freeways, principal and minor arterials. All arterials are also designated *urban* or *rural*, depending on location.

- *Collectors* are roads which balance a mobility and local property access role. Specific classifications are urban collectors, *rural major collectors* and *rural minor collectors*.

- *Local-access* roads are so classified because their function is to provide access to property, almost exclusively. This functional classification does not necessarily coincide with roads called county or city "local" under Act 51.

The distinctions between urban and rural functional classifications are based on the federal-aid urban boundary. Federal-aid urban boundaries are established administratively for places with a U.S. Census population of 5,000 or more. Spacing and density criteria differ between the urban and rural systems.

National Functional Classification is used to determine whether a road is eligible for federal aid. Eligible roads are: all principal arterials, all minor arterials, urban collectors, rural major collectors and rural minor collectors. The Transportation Equity Act for the 21st Century (TEA-21) for the first time allowed federal aid to be spent on rural minor collectors, up to 15 percent of a state's rural Surface Transportation Program funds. However, rural minor collectors have not been added to the definition of federal-aid highways. Urban or rural local-access roads are not eligible for federal aid.

Financial Implications of NFC and Act 51 Legal Systems

There is little direct correlation between NFC and the five Michigan "legal" systems authorized by Act 51. Virtually all state trunklines are federal-aid eligible[2], but only about 74 percent of county primary roads and about 60 percent of city major streets are eligible. Almost no county

[2] Of the 9,725 route miles on the state trunkline system, 14 miles are not eligible for federal aid. Over half of these miles are on Mackinac Island, as M-185.

local roads and city local streets are eligible for federal aid. Moving a road segment from one state legal system to another does not automatically change the road's NFC designation and make it eligible for federal aid. The tables below show how route mileage on the National Functional Classification system and Michigan's Act 51 legal systems correspond.

National Functional Classification / Act 51 Legal System Route Mileage

National Functional Classification		Legal System					Total
		State Trunkline	County Primary	County Local	City Major	City Local	
Rural	Interstate	741	0	0	0	0	741
	Other Freeway	422	0	0	0	0	422
	Other Principal Arterial	2,324	3	12	0	0	2,340
	Minor Arterial	3,617	446	3	17	0	4,082
	Major Collector	585	15,646	327	423	8	16,988
	Minor Collector	0	5,878	283	67	2	6,229
	Local-Access Roads & Streets	14	831	55,028	760	2,227	58,860
Urban	Interstate	500	0	0	0	0	500
	Other Freeway	222	0	0	0	0	222
	Other Principal Arterial	941	687	1	347	0	1,976
	Minor Arterial	339	1,689	57	1,301	20	3,406
	Collector	21	927	225	1,285	87	2,544
	Local-Access Roads & Streets	0	256	6,874	1,724	12,234	21,088
	Total	9,725	26,362	62,811	5,923	14,577	119,399

Broad NFC Categories And Jurisdiction

National Functional Classification	Jurisdiction			Total
	State	County	City	
Interstate and Other Freeways	1,885	0	0	1,885
All Other Arterials	7,221	2,898	1,685	11,804
All Collectors	605	23,285	1,871	25,762
Local-Access Roads & Streets	14	62,990	16,944	79,948
Total	9,725	89,174	20,500	119,399

Sources: Highway Performance Monitoring System data for June, 1999 and 1999 MDOT Sufficiency Report

The federal-aid urban boundaries embedded in NFC are used in two Act 51 distribution formulas. Counties receive a six-fold multiplier in their dollars-per-mile return for urban versus rural mileage. NFC also interacts with state funding in Michigan's rules for distributing state and federal funds under Transportation Economic Development (TEDF), Categories "D" and "F." To be eligible for these funds, roads must be within specific NFC categories.

Changes in NFC must be approved by FHWA, unlike changes in a road's legal system under Michigan law. Federal guidelines regulate the percentage of a state's system that may be placed in each class, so it is not possible to change the classification of every road so that it becomes eligible for federal aid.

WORKINGS OF
ACT 51 OF THE PUBLIC ACTS OF 1951, AS AMENDED

Article IX, Section 9, of the Michigan Constitution of 1963, as amended, states that "All specific taxes . . . imposed directly or indirectly on fuels sold or used to propel motor vehicles upon highways. . . or on registered motor vehicles . . . shall, after payment of necessary collection expenses, be used exclusively for transportation purposes . . ."

Act 51 creates a “user-pay fund” into which specific transportation taxes are deposited, and prescribes how these revenues are to be distributed and the purposes for which they can be spent. Act 51 establishes jurisdictional road networks, sets priorities for the use of transportation revenues, and allows bonded indebtedness for transportation improvements and guarantees repayment of debt.

Fuels are defined in the “Motor Fuel Tax” act, P.A. 150 of 1927, MCL 207.101(1)(a).

IMPORTANT PARTS OF ACT 51

See Chart 1, on page 82.

Michigan Transportation Fund [Sec. 10]

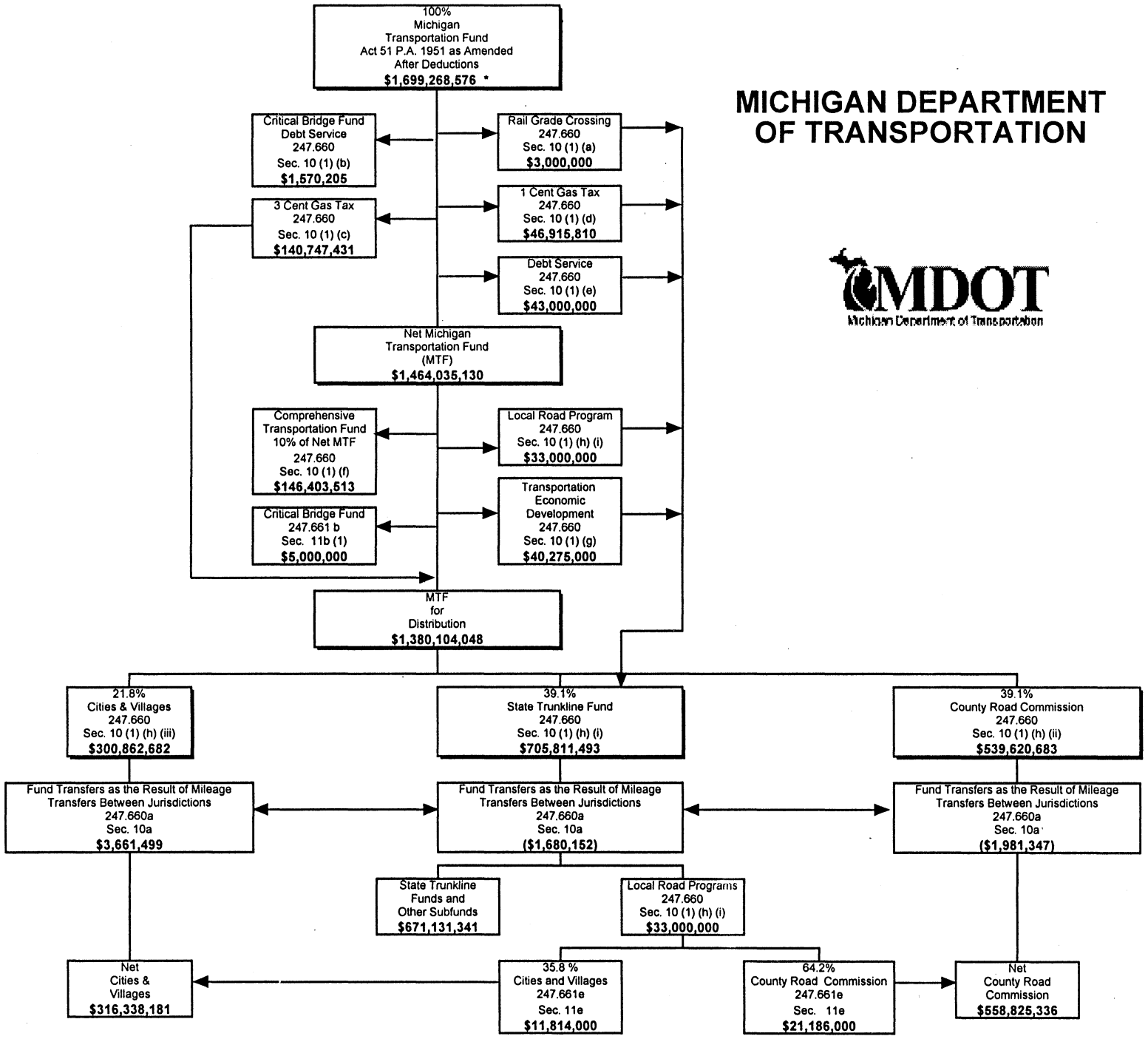
Act 51 creates the Michigan Transportation Fund (MTF). Revenues collected through highway user taxes–state motor fuels taxes, vehicle registration fees, and other miscellaneous automobile-related taxes–are deposited in MTF.

Recreation Improvement Fund

Two percent of all state gasoline-tax revenue goes into this fund, which is used for improvement of marinas, trails, and other facilities for motorized recreation. This will equal $17,961,900 in Fiscal Year 1999. This is not a diversion of road-user taxes, because this amount is felt to equal the motor-fuel tax payments by users of boats, snowmobiles, and off-road vehicles who fuel their vehicles with taxed gasoline (fuel not “used to propel motor vehicles on highways”). There is no practical way to make tax refunds to these fuel purchasers, so the motor fuel taxes are credited to a fund benefitting recreational-vehicle owners.

MICHIGAN DEPARTMENT OF TRANSPORTATION

MDOT
Michigan Department of Transportation



* **All dollar amounts based on actual cash basis distribution, including Local Road Program for the fiscal year of October 1, 1997 through September 30, 1998**

Interdepartmental Transfers

Approximately $56 million is taken "off the top" of the Michigan Transportation Fund (MTF) for transfer to other departments of state government. The majority of this is appropriated to the Department of State to pay for administering the license plate system ("necessary collection expenses"). Before Fiscal Year 1998 this amount was dictated by costs attributed to registration transactions by the Secretary of State, and in 1996 equaled $82 million, or about $9.80 per license plate per year. In 1998 and 1999 the amount of this transfer was reduced by the Legislature to $43 million below the traditional level. This means that part of the cost of registration operations is funded from the General Fund. An additional $6,899,900 is transferred to Treasury for collecting the fuel tax.

Another $12 million is transferred to other departments from the MTF, Comprehensive Transportation Fund (CTF), and Aeronautics Fund. These transfers go to the Michigan State Police for traffic-safety statistics, to the Department of Environmental Quality for wetland permits for highway projects, to Civil Service and Management and Budget for administrative tasks, and to other departments for other functions performed on behalf of the highway program.

Transfers from the MTF were reduced in MDOT appropriations bills beginning in Fiscal 1998, and after Fiscal 2000 all transfers cease except for those to the Departments of State, Environmental Quality, and the Attorney General.

Amendments to Formula

Before the three-way division is made of funds between state highways, county roads, and municipal streets, several appropriations are made directly to programs or particular jurisdictions:

- The Rail Grade Crossing Account receives $3,000,000 to pay for a share of installation of railroad crossing signals.

- The Critical Bridge Fund receives $3,000,000 for debt service on past bond issues, and $5,000,000 for grants to road agencies for current projects.

- An amount equal to three cents' tax on gasoline (but not other fuels) is divided between the STF, counties, and cities and villages according to the 39.1 / 39.1 / 21.8 per-cent formula.

- An amount equal to one cent tax on gasoline is apportioned directly to the STF. (These two amendments have the effect of making the 1997 4 cent gas-tax increase unavailable for transit.)

- The STF receives $43 million for debt service for past state-trunkline projects.

- The Local Program Fund receives $33 million for division, split 64.2 percent to county road commissions and 35.8 percent to cities and villages.

- The Transportation Economic Development Fund (TEDF) receives $40,275,000 for debt service and division among its five programs. The TEDF law is not part of Act 51, and distributes money to counties and municipalities through three formulas and two grant programs.

- After these apportionments, the Comprehensive Transportation Fund (CTF) for transit programs is allocated 10 percent of the balance, or approximately 8.6 percent of the MTF. The maximum share permissible under paragraph 2 of Article IX, Section 9 of the Constitution is 10 percent ("Not less than 90 percent . . . shall be used exclusively for . . . roads, streets, and bridges . . .").

Main Formula

After these distributions, the remainder of the MTF is divided between road systems under three levels of government. The State Trunkline Fund receives 39.1 percent, county road commissions divide 39.1 percent, and cities and villages divide 21.8 percent.

Sunset

The law governing the distribution of money from the MTF expires Sept. 30, 2000. If no new distribution formula is enacted for the period following that date, distributions cease to the STF, CTF, counties and municipalities, except for debt service. Funds accumulate in the MTF until a new formula is enacted.

Federal-aid Allocation

This section also prescribes the distribution of a fraction of federal aid: 31.5 percent of Michigan's Minimum Guarantee apportionment. Nearly a third of this aid, which would otherwise be combined with the rest of Michigan's federal aid, is distributed to the TEDF, with 16.5 percent earmarked for projects in 78 rural counties and 15 percent for capacity improvements in the five most urban counties.

Comprehensive Transportation Fund [Sec. 10b and e]

Act 51 creates the Comprehensive Transportation Fund (CTF). Its purpose is to provide funds for planning, programming, operation, and construction of public transportation systems, in accordance with the policies of the State Transportation Commission. The CTF receives 6.975 percent of the sales tax on motor-vehicle-related items and approximately 8.6 percent of net revenues in MTF. The first priority for use of CTF monies is debt service. Administrative expenses are restricted to not more than was used for administration in 1987 (after correcting for inflation).

Most of the remaining CTF money is distributed to local transit agencies for operating and capital grants for public transportation. (A separate study committee was convened by the Michigan Transportation Commission to review transit-funds distribution.) Not less than 10 percent is to be used for intercity passenger and freight service. The remainder is allocated for specialized services and other public transportation purposes.

JURISDICTIONAL ROAD NETWORKS

Act 51 authorizes designation of jurisdictional road networks: state highways, county roads, and city and village streets. These "legal systems" fix which road is under which agency's jurisdiction and determine funding. The Act sets criteria for those designations and allows for the transfer of mileage between systems. Act 51 assigns responsibility for maintenance, construction and improvement of those roads to the various governmental bodies. Maintenance includes snow removal, cleaning, patching, signing and marking, in addition to preservation, reconstruction, resurfacing, restoration, and rehabilitation.

State Trunklines [Sec. 1]:

The State Trunkline System is one of the jurisdictional road systems authorized by Act 51. Designated by the State Transportation Commission, the state trunkline system consists of roads, streets, and highways found both inside and outside the limits of incorporated cities and villages. It assigns to the Michigan Department of Transportation the direction, supervision, control, and cost of maintenance, construction, and improvements to state trunkline highways,

Incorporated cities of over 25,000 people are required to make a financial contribution, according to population, for improvements to state trunkline highways within their jurisdiction, and for connections between city streets and the state trunkline system. [Section 1c(a)]

This section also requires that the state develop a pavement management system, use life-cycle-cost analysis for projects costing over $1 million in state funds, and employ various strategies to help minority business enterprises compete for contracts.

County Primary and Local Roads [Sec. 2, 3, 4 and 5]:

The County Primary and County Local Road systems, designated by board members of the County Road Commissions and subject to approval by the State Transportation Commission, are also established by Act 51.

County Primary roads are selected according to their importance to the county, and may be located within cities and villages. All other county roads are part of the County Local road system. In addition, the act authorizes designation of a Seasonal County Road system which is open to public travel only six months a year. [Section 5a]

City Major and Local Streets [Sec. 6, 7, 8, and 9]:

City Major Street and Local Street systems established by Act 51 are designated by a municipality's governing body, subject to the approval of the State Transportation Commission. City Major Streets are chosen according to their importance to the municipality. All other streets are City or Village Local Streets. These street systems include no county roads or state trunkline highways.

TRANSFER OF MILEAGE BETWEEN JURISDICTIONS

Road mileage may be transferred between jurisdictional levels. A county or city may transfer a road to the state, or the state may transfer a road to a city or county, as long as certain conditions are met; see Act 296 of 1969 (MCL 247.851-247.861). Also, a city or village may request that a county primary road within its boundaries be placed under its jurisdiction; if the county road commission refuses, the decision can be appealed to the Transportation Commission. [Sec. 12c]

MDOT keeps track of the mileage transferred from each jurisdiction to every other jurisdiction. Jurisdictions receiving mileage get a distribution of funds for each mile transferred since 1973. The amount is governed by the average "revenue worths" per mile of county Primary and Local Roads in the previous year [Sec 10a] which in 1999 were $15,444.29 and $2,529.31 respectively. The table on page 87 displays mileage which has been transferred since 1973.

Mileage Transferred Since 1973

From \ To	MDOT	County Primary	County Local	City Major	City Local	Gross Mileage Transferred	Net Difference
MDOT		196.29	7.84	57.67	0.29	262.09	(29.95)
Counties	199.71			221.21	619.61	1,040.53	(739.60)
Cities	32.43	92.81	3.99			129.23	769.55
Sub-Total		289.10	11.83	278.88	619.9	1,431.85	0.00
Total Recv. MDOT:	232.14	**Total Recv. County:**	300.93	**Total Recv. City:**	898.78	1,431.85	

RESTRICTIONS ON FUNDS FOR STATE TRUNKLINES

After debt service, grants to the railroad grade crossing account are the next priority. Not more than 50 percent may be used for crossings on state trunklines. Trunkline operating costs are the next priority use of state trunkline funds. These include tort liability settlements by the Department of Transportation, according to a ruling by the Attorney General; these have averaged $15 million a year since 1986. Remaining funds are used for maintenance of roads and bridges and for capital improvements. According to Section 11(2), 90 percent of state funds must be used for "maintenance" as defined in the Act, including snow-plowing, marking, patching, as well as reconstruction, resurfacing, restoration, and rehabilitation. In addition, Section 11(3) requires 90 percent of federal aid be used for maintenance; however, federal aid cannot be used for non-capital "maintenance" activities. This requirement is waived for projects on the federally-designated National Highway System or if compliance causes the state to be ineligible for federal funds, but only to the extent necessary to preserve eligibility.

COUNTY "INTERNAL" FORMULA

The county formula is complicated, as shown on Chart 2, page 88.

MICHIGAN DEPARTMENT OF TRANSPORTATION

Net County Road Commission $558,825,336 *

Remainder $552,724,357

Direct Jurisdictional Transfer Payments
$819,047
247.660a
Sec 10a (4)
Distribution
Jurisdictional Mileage Transfers from State to Counties for Mileage Transferred after July 1, 1992 are Paid Directly to Appropriate County

Licensed Professional Engineer
$811,410
247.662
Sec. 12 (2)
Distribution
Up to $10,000 per County Road Commission per year for the sum paid to a Licensed Professional Engineer employed or retained by the Road Commission in the previous year

Snow Removal 1% of prior Calendar Year Distribution
$4,470,522
247.662
Sec. 12 (3)
Distribution
247.662a
Prorated based on each respective county's average percentage share of the total snow amount returned annually in each of the 14 calendar years before 1987

10% Urban Road Area
$55,272,436
247.662
Sec. 12 (4)
Distribution
247.662b
LOCAL ROADS
Proration of the total urban local road mileage in all counties to the total urban local road mileage plus 6 times urban primary road in all counties
PRIMARY ROADS
Proration of the total urban primary road mileage times 6 in all counties to the total urban local road mileage plus 6 times urban primary road mileage in all counties

- **Local Roads**
  $13,872,305
  $1,919 per mile
  Distribution
  247.662b
  Proration of total urban local road mileage in each county to the total urban local road mileage in all counties
- **Primary Road**
  $41,400,130
  $11,516 per mile
  Distribution
  247.662b
  Proration of total urban primary road mileage times 6 in each county to the total urban primary road mileage times 6 in all counties

Remainder $475,342,947

75% Primary Roads 247.662 Sec. 12 (6) $356,507,210

- **75% Prorated on Basis of Weight Tax Collection**
  $267,380,407
  $0.43 per dollar collected
  247.662
  Sec. 12 (6) (a)
  Distribution
  Proration of Preceding 12 Months Collection of Specific Taxes upon Registered Motor Vehicles in Each County to the total Preceding 12 Months Collection of Specific Taxes upon Registered Motor Vehicles in all Counties
- **10% Prorated on Basis of Primary Road Mileage**
  $35,650,721
  $1,346 per mile
  247.662
  Sec. 12 (6) (b)
  Distribution
  Proration of Total Mileage in the County Primary Road System in each County to the Total Mileage in the County Primary Road System in all Counties
- **15% 1/83 Equally to all Counties**
  $53,476,081
  $644,290 per County
  247.662
  Sec. 12 (6) (c)
  Distribution
  1/83 to Each County

25% Local Roads 247.662 Sec. 12 (7) $118,835,737

- **65% Prorated on Basis of Local Road Mileage**
  $91,614,062
  $1,459 per mile
  247.662
  Sec. 12 (7) (a)
  Distribution
  Proration of Total Mileage in the County Local Road System in Each County to the Total Mileage in the County Local Road System in all Counties
- **35% Prorated on Basis of Rural Population**
  $49,330,649
  $12.84 per capita
  247.662
  Sec. 12 (7) (b)
  Distribution
  Proration of Total Population Outside of Incorporated Municipalities in each County to the Total Population outside of Incorporated Municipalities in All Counties

Local Road Funds Restriction
Michigan Transportation Funds for Local Road Construction not to Exceed 50% of the Construction Costs.
Michigan Transportation Funds for Local Bridge construction not to exceed 75% of the construction costs
247.662
Sec. 12 (15)

4% Local Roads 247.662 Sec. 12 (5) $22,108,974

First Priority
For Debt Service on Bonds or Notes Issued Under
1941 P.A. 205
1943 P.A 143
1951 P.A. 51
247.662
Sec. 12 (8)

Restrictions
Not more that 5% of Primary and Local Road Funds can be used for Roadside Parks
247.662
Sec. 12 (11)

A Minimum of 90% of M.T.F. Returned must be expended for Maintenance
247.662
Sec. 12 (16)

At least 20% per Annum of Michigan Transportation Fund must be used In Accordance with
247.662
Sec. 12 (10)

Funds Transferable between Systems
247.662
Sec. 12 (9)

Not More that 10% Per Annum For Administrative Expenses
247.662
Sec. 12 (21)

* **All dollar amounts based on actual cash basis distribution, including Local Road Program for the fiscal year of October 1, 1997 through September 30, 1998**

Chart 2: County "Internal" Formula

Of the net amount for distribution, about 1 percent is distributed for snow removal, according to a formula based on a 14-year record of snowfall.

Then 10 percent is distributed on the basis of urban primary and urban local road mileage (within the federal-aid urban boundary). Then, 4 percent is set aside for local roads (to be distributed as shown below).

Then the remainder, approximately 85 percent, is divided 75 percent for county primary roads, and 25 percent for local roads, and distributed to counties through two formulas.

Primary road funds are distributed—
- 10% prorated on the basis of primary road mileage
- 15% equally to all counties (1/83)
- 75% prorated on vehicle registration fee collections in each county

Local road funds (4% of all county funds, plus 25% of 85%) are distributed—
- 65% prorated on the basis of local road mileage
- 35% prorated on the basis of rural population (outside municipalities)

County Transfer of Funds

Up to 30 percent of primary road funds may be expended on county local roads per year. Up to 15 percent of local roads funds may be expended on primary roads per year, with an additional 15 percent upon approval by MDOT, or in emergencies.

County Match

Act 51 distributions used for construction on county local roads must be matched by an equal amount from local sources. Distributions used on bridges on county local roads must be matched by local funds covering at least 25 percent of project cost.

Restrictions on County Use of Funds

Several restrictions are placed on the use of MTF distributions by county road commissions. Not more than five percent can be used for roadside parks. County local funds used for bridge construction on county local roads cannot exceed 75 percent of the cost of construction, and must be matched by money from other sources. At least 90 percent of the funds remaining after payments are made for debt service, administration, and capital outlay projects for equipment and buildings, must be used for maintenance, but the definition of maintenance is different than for other jurisdictions. Ninety percent of federal aid must also be used for maintenance, but this

calculation may be based on a three year average, rather than a single year's expenditure. Federal aid used for non-maintenance activities on county Primary roads within urban-area boundaries and for hard-surfacing of gravel roads on the county Primary system are exempt from the 90 percent requirement. [Sec. 12(17)]

In addition, the act authorizes county road commissions to contract with other county road commissions for the purchase and use of necessary equipment. The act requires the state and county road associations to jointly develop incentives for counties to establish statewide purchasing pools. It limits county administrative expenditures not attributable to projects to 10 percent of annual program expenses, and requires the Department of Treasury to conduct performance audits of county road commission use of MTF funds.

CITY AND VILLAGE "INTERNAL" FORMULA

As shown on Chart 3 (page 92), for the net amount available to cities and villages, Act 51 first divides the amount 75 percent for major streets, and 25 percent for local streets. Then, the city and village "internal" formula apportions these two amounts to municipalities 60 percent on the basis of population, and 40 percent on the basis of major and local mileages. Major street mileage is weighted more heavily in larger cities, where major streets are likely to be wider and more expensive.

"Major" and "local" street funds were largely restricted to use on those systems, with limited transferability between them. This restriction lasted until 1999, when restrictions on transferability of city street funds were removed from Act 51.

Although it is not part of Act 51, municipalities are obliged to abide by the Michigan Manual of Uniform Traffic Control Devices as a condition of receiving Act 51 distributions. This is how uniformity of traffic control law is enforced throughout the state. Cities also may not close streets to any class of traffic, such as trucks or motorcycles, except as dictated by engineering or safety considerations such as truck weight.

Cities may enter into agreements with other cities or villages to consolidate services and provide for joint participation in costs. No requirement is specified for the percentage of funds expended for maintenance. Not more than 10 percent of funds may be used by cities for administration.

Municipal Match

State funds spent for "construction" on local streets (as opposed to maintenance) must be matched from local sources. State investments on state trunklines within municipal boundaries must be matched in small part by city or village funds, according to population:

Population	Municipal Share of State-trunkline Expenditures
Under 25,000	0.00 percent
25,000–39,999	8.75
40,000–49,999	11.25
50,000 or more	12.50

The rationale for this required match is that much of the traffic on state trunklines within cities is local, and that most of the improvements on trunklines within municipalities is necessitated by adjacent land development, driveways, and other congestion-producing features.

Chart 3: City and Village "Internal" Formula

MICHIGAN DEPARTMENT OF TRANSPORTATION

MDOT
Michigan Department of Transportation

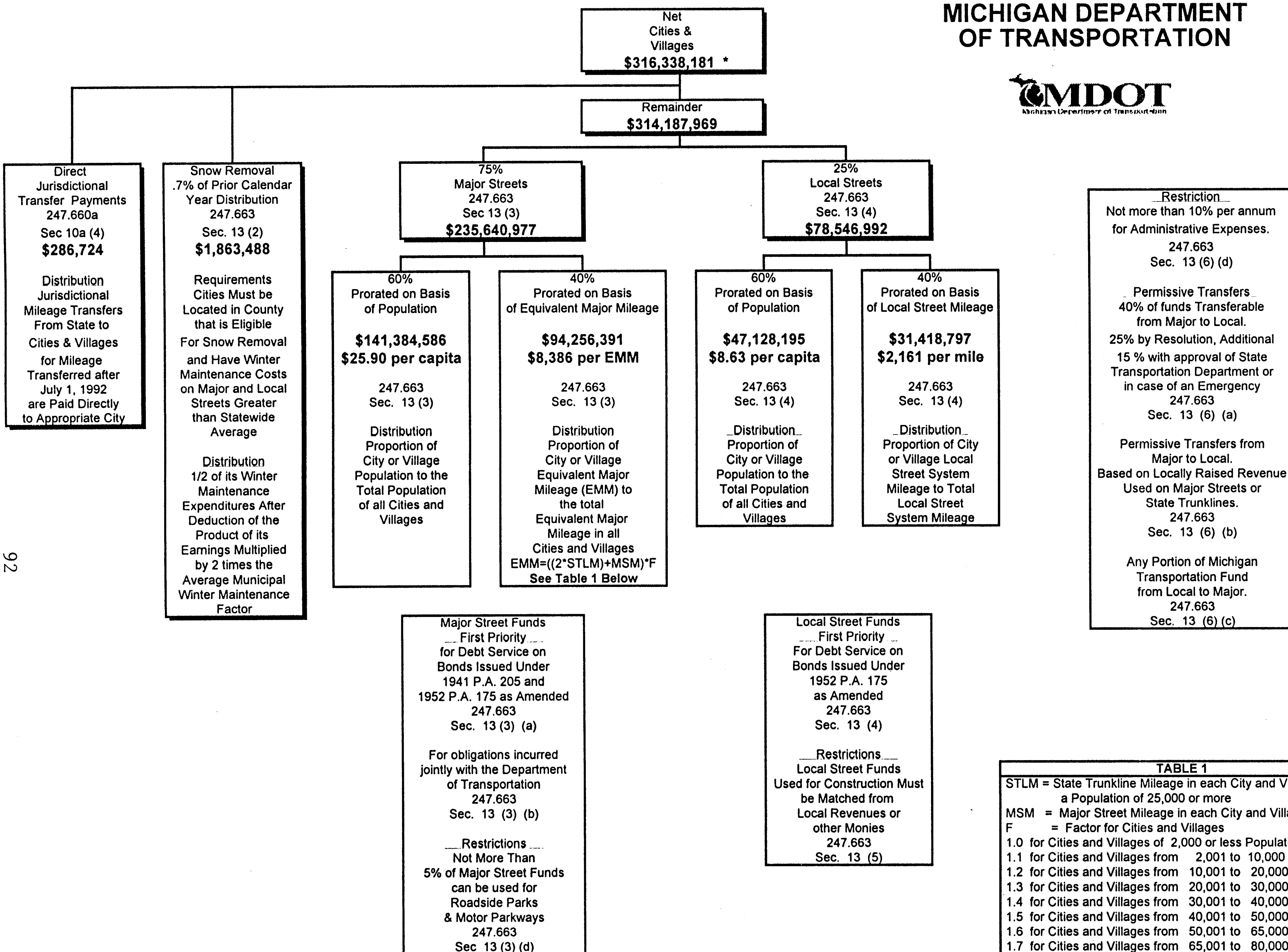


TABLE 1

STLM = State Trunkline Mileage in each City and Village having a Population of 25,000 or more
MSM = Major Street Mileage in each City and Village
F = Factor for Cities and Villages

1.0 for Cities and Villages of 2,000 or less Population.
1.1 for Cities and Villages from 2,001 to 10,000 Population.
1.2 for Cities and Villages from 10,001 to 20,000 Population.
1.3 for Cities and Villages from 20,001 to 30,000 Population.
1.4 for Cities and Villages from 30,001 to 40,000 Population.
1.5 for Cities and Villages from 40,001 to 50,000 Population.
1.6 for Cities and Villages from 50,001 to 65,000 Population.
1.7 for Cities and Villages from 65,001 to 80,000 Population.
1.8 for Cities and Villages from 80,001 to 95,000 Population.
1.9 for Cities and Villages from 95,001 to 160,000 Population.
2.0 for Cities and Villages from 160,001 to 320,000 Population.
and for Cities over 320,000 Population by a factor of 2.1 increased successively by 0.1 for each 160,000 Population increment over 320,000.

* **All dollar amounts based on actual cash basis distribution, including Local Road Program for the fiscal year of October 1, 1997 through September 30, 1998**

04/08/99

OTHER PROVISIONS OF ACT 51

Townships — Townships may contribute to county road projects from millage levied for road purposes, or from state aid distributed to townships [Sec. 14(6)]. Township boards may appropriate township general funds for use on county roads or state trunklines within township boundaries. Township property taxes for road uses may not exceed 6 mills [Sec. 20]. Townships of over 40,000 population may enter into agreements with road commissions in counties of over 500,000 covering township participation in road maintenance [Sec. 20a].

Penalty for Misapplication, Forfeiture of Funds — Misuse of MTF funds for purposes not prescribed by Act 51 by a county road commission, city or village is penalized by forfeiture of one year's distributions. Forfeited funds are redistributed among the other counties or municipalities according to the usual formula.

Non-Motorized Routes — A minimum of one percent (based on a ten-year average) of MTF funds distributed to the state, counties and cities must be used for non-motorized transportation facilities. Such facilities can be in conjunction with or separate from a road. [Sec. 10k]

Advance Right-of-Way Acquisition — Act 51 authorizes the state, county road commissions, and cities and villages to acquire right-of-way in advance of construction programming and to use MTF distributions for that purpose. [Sec. 13a]

Bonded Indebtedness and Taxation — Act 51 enables the State Transportation Department to sell bonds or notes for several purposes with the approval of the State Transportation Commission. These include bond sales to construct highways or transit systems, to make loans and grants, and to refund old notes. Within 30 days subsequent to a bond issue, the description of a project on the bond list can be amended by the State Transportation Commission.

County Road Commissions are authorized to sell bonds for construction, by resolution of the board of the County Road Commission. The annual amount of a county's debt service cannot exceed 50 percent of the county's previous-year MTF receipts. [Sec. 18a, b, c]

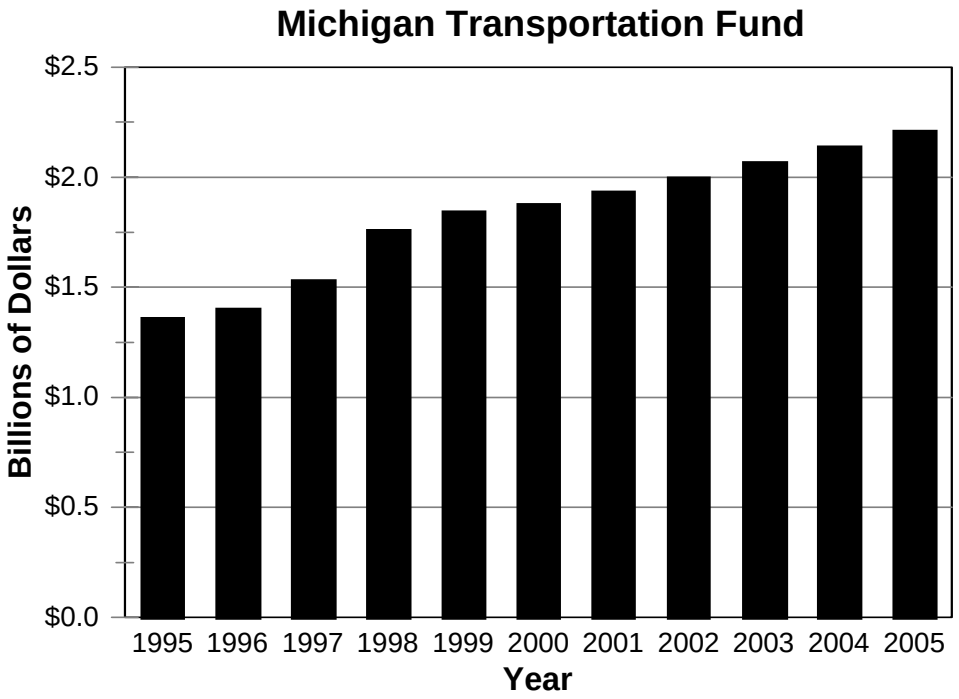
Corridor Planning — The act requires county road commissions and cities and villages to establish corridor planning committees and corridor plans.

Warranties, Administration — The Act requires, where possible, warranties of not less than 5 years for contracted construction work, and notification of the Legislature of large cost overruns. The act also limits administrative expenditures to ten percent of annual program expenses. Projects costing over $100,000 must be competitively bid, for both state and local projects.

REVENUES TO THE MICHIGAN TRANSPORTATION FUND

Total Revenues

The Michigan Transportation Fund receives revenues from two classes of road-user fees: motor-fuel taxes and vehicle registration (license-plate) fees. The revenue total is approximately $1.7 billion per year. Revenues increased with the 1997 fuel-tax increase, and are expected to increase with economic activity in Michigan, as shown on the graph below.



Sources: 1995 - 1999 Michigan Department of Transportation, Finance
2000 - 2005 Michigan Department of Transportation, Planning

Motor Fuel Tax

This is the largest source of transportation finance for Michigan, and is authorized in Public Act 150 of 1927, MCL 207.122. The tax is a privilege tax for the use of the public roads, and revenues are restricted to transportation uses by Article IX of the Constitution of 1963. The various motor fuel taxes were expected to yield $1,011,137,000 in Fiscal 1999.

The gasoline tax and 9 cents of the Diesel tax is collected from fuel wholesalers at the point where the fuel enters Michigan. Most of the tax is paid by a small number of actual taxpayers. The tax is passed on to other dealers, retailers, and ultimately road users. (Some non-road users may claim refunds for fuel not used to propel road vehicles.)

Two motor fuel tax rates are in effect:

Gasoline	19 cents per gallon
Diesel fuel	15 cents

All other liquid fuels are taxed at the same rate per gallon as gasoline if used to propel vehicles: gasohol, methanol and other alcohol blends, propane, liquified natural gas and others.

Diesel fuel is taxed under *two different laws, according to the weight of the vehicle* the fuel is pumped into. Only Diesel vehicles under 13 tons gross vehicle weight pay the motor fuel tax; heavy trucks pay the motor carrier tax (see below).

The sum of the retail price of the fuel and federal taxes[1] is also subject to Michigan's 6-per-cent sales tax, which is credited mostly to the General Fund and the School Aid Fund.

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[1] Note: Motor fuels are also subject to federal fuel tax for the federal Highway Trust Fund. These tax rates, among others, are in effect until Jan. 1, 2001, when the tax on gasohol will be slightly increased:

Gasoline	18.4 cents
Diesel fuel	24.4 cents
Gasohol (10 percent ethanol)	13.0 cents
Liquified petroleum gas	13.6 cents
Liquified natural gas	11.9 cents
M85 (85 percent methanol)	9.25 cents

Motor Carrier Tax

Diesel vehicles over 13 tons gross vehicle weight ("motor carriers") pay the motor carrier tax, not the motor fuel tax, under Public Act 119 of 1980, MCL 207.211 *et seq*.

This tax is owed *to the state in which the fuel is used, not the state where it is purchased*. For interstate truckers, this tax is administered under the International Fuel Tax Agreement (IFTA), and operators make all payments to the state in which their truck is registered, with a tax return apportioning their mileage among the states and most Canadian provinces. The states then distribute the revenues among themselves. Truckers who never leave Michigan make payments to the Michigan Department of Treasury. (Taxes are calculated at each truck's rate of fuel consumption, or at 4 miles per gallon in the absence of records.)

Since April of 1997, Michigan's motor carrier tax rate has been nominally 21 cents per gallon used in Michigan. However, truck operators may claim a refund of 6 cents for each gallon purchased in Michigan, making the effective tax rate 15 cents on fuel purchased and used in Michigan.

The refund is intended to attract fuel sales to Michigan retailers. For similar reasons, motor carriers pay only 9 of the 21 cents' tax at the time of purchase; a Michigan or IFTA fuel-tax-license sticker entitles truckers to a 6-cent retail discount from the 15 cents' motor fuel tax applied to Diesel fuel. The intent of this "Diesel discount" is to attract fuel sales to Michigan by reducing truckers' cash outlay for fuel, although their tax liability is unaffected. The refund and discount require more fuel-tax filings by Michigan firms than would otherwise be necessary. (Between 1980 and 1997, the 9 cents collected at the pump was the full amount due, and quarterly filings weren't necessary for intrastate trucks. High annual license fees compensated for the low per-gallon rate. In April, 1997, the $25 and $92 fees for fuel-tax-license stickers were repealed for IFTA and intrastate trucks, respectively.)

Vehicle Registration Fees

This is the other principal component of Michigan transportation finance, and is expected to generate $683,300,000 in Fiscal 1999, or 38.7% of MTF revenues. Vehicle-registration fees are collected with the purchase of license plates for every vehicle used on public roads. MCL 257.801 *et seq.*

Unlike fuel taxes, registration fees do not vary with taxpayers' use of the roads. Vehicles used only rarely must pay as much as those driven daily.

Light-vehicle Fees — Historically, registration fees varied with the weight of the vehicle, but as a basis for charging for road use, pavement wear is a consideration only for heavy trucks. In 1983, light-vehicle (passenger-car, pickup and van) fees were changed to an *ad valorem* system, based on vehicle price. The change increased revenue and made the tax more progressive. For 1984 and later model years, annual fees are half a percent of a new vehicle's base price, and decrease by 10 percent per year for each of the first three re-registrations. This requires that every model of vehicle have a price assigned to it by the Secretary of State, in a complicated schedule of rates.

Since 1984, vehicle-registration revenues have been rising with vehicle base prices. Weight-based auto registrations are $32–47; value-based registrations average $70 for all vehicles, and are now $80–120 for the newest cars. In 1997, about 100,000 pickups and vans owned by firms were brought under the value-based system.

Heavy-truck Fees — Heavy-truck fees remain in proportion to weight, and were increased 30 percent by P.A. 80 of 1997. Truck operators may elect a maximum gross vehicle weight (GVW) above which they may not load their vehicle, and pay accordingly. Elected GVW is enforced by weighmasters. Elected-GVW fees range from $491 per 12 months for a 24,000-lb. truck to $3,117 for a truck carrying the maximum allowable GVW of 164,000 lbs. This steeply-rising schedule of fees is intended to partially compensate road agencies for the extra pavement thickness, roadway width, and bridge strength needed by trucks, and for pavement wear attributable to trucks. MCL 257.801(1)(k).

Elected-GVW truck registration fees are apportioned among the states in which a truck travels by the International Registration Plan. MCL 257.801g. Even interstate trucks not registered in Michigan contribute registration fees to the MTF through the Plan. Some Michigan firms may avoid registering trucks here because of the $15/truck surcharge for the Truck Safety Fund.

Discounted Fees — Many fee schedules are in effect for specialized vehicles. Trailers are charged under an abbreviated weight schedule, with semi-trailers paying $39 per year. Motor homes are charged under the automobile weight schedule. Buses are charged by weight, according to their own schedule of fees. Trucks owned by farmers and wood harvesters are charged lower fees, if not used for hire. Trucks used exclusively as moving vans or for hauling carnivals have slightly-reduced rates. Trucks and buses owned by churches, certain charities, recycling centers and governmental agencies are charged special rates according to empty weight. Hearses, trucks hauling parade floats, and portable feed mills have special rates.

Here are the estimated contributions of the major classes of registration in Fiscal 1998:

Michigan Car and Truck Registrations
As of December 5, 1997

	Number of vehicles, Percent	Average tax per vehicle
1983 and older cars, pickups and vans (weight registrations)	677,887 9.2%	$37.19
1984 and newer cars, pickups and vans (value registrations)	6.357,859 86.3%	$68.02
Older and corporate-owned light trucks (weight registrations) *	187,499 2.5%	$80.69
Medium and heavy trucks (elected-GVW registrations)	144,725 2.0%	$711.34
All cars and trucks	7,367,970 100%	

* Since 1997, approximately 100,000 corporate-owned light trucks have come under the value-based registration system.

Other Michigan Vehicle Registrations
As of October 1, 1997

Motorcycles	126,482
Trailers	800,749
Other styles of vehicle	77,825
All vehicles	8,373,026

ALTERNATIVE REVENUE SOURCES

Other revenue sources are available for roads besides state registration fees and fuel taxes. Most municipalities use some general funds for streets, from property taxes, revenue-sharing distributions, or other sources. Approximately a quarter of Michigan's counties levy special property-tax millage for roads to supplement their Act 51 distributions, and so do some cities. Fourteen counties with national forests receive small payments from federal timber revenues that may be applied to roads. Many townships also contribute funds to county road projects. In addition to local general funds, other sources are used, in Michigan or other states:

State General Funds

Although motorist fees cannot be used for non-transportation purposes, there is no prohibition on use of the General Fund for transportation. About 1.3 percent of sales-tax revenue, or $66 million (on automotive-related sales) is credited to the CTF. It is not usable for roads.

Regional Property Taxes and Other Regional Taxes

Several places in Michigan levy regional property taxes for transit authorities, but not for roads. Regional sales taxes are used for transit authorities in other states. Like all regional taxes, this risks diverting trade to retailers outside the region. The effect on retailers at the boundaries of the region could be severe, but this impact is minimized if the taxed region is large. Regional or county surtaxes on the motor fuel tax are in use elsewhere, but the impact on fuel retailers just inside the boundary is likely to be significant.

City or county surtaxes on vehicle registration are used in a few states, although motorists with more than one address can avoid them. Such surtaxes were authorized for a time in the 1980's in Michigan, but no county acted on the enabling legislation.

Impact Fees

Many fast developing places in other states charge traffic-impact fees, based on traffic generated by new land development, and equal to the cost of improvements needed to handle each developer's share of future traffic.

Other User Fees

Local governments and MDOT charge fees for some services, such as for permits for oversize or overweight loads, or billboards. Usually these fees cover administrative expenses only, but they could be increased to cover the cost of the service. They could also indirectly compensate other users for costs imposed by the permittee, such as the delay caused by oversize vehicles.

Technological Change and Road User Fees

Michigan obtains 61.3 percent of its road funds from motor-fuel taxes. If another fuel supplants gasoline and Diesel fuel, the tax law will have to be changed to protect road finance. At present, no new technology appears capable of replacing current fuels, but technological advances could bring new, untaxed power sources into use. The following technologies appear to have the greatest chance of coming into use within the period likely to be covered by new road-finance legislation

Gaseous fuels: Michigan's motor-fuel tax law covers all likely future liquid fuels (ethanol, methanol, alcohol-gasoline mixtures, liquified petroleum gases), including use of these fuels in fuel cells and methanol reformers. Michigan law does not cover gaseous fuels such as compressed natural gas and hydrogen. These fuels are in experimental use in Michigan and elsewhere.

Electricity: No means has been proposed to charge electric vehicles for road use on a per-mile basis. Some kind of metering and billing would probably be required. (Electric vehicles are likely to be the subject of campaigns to subsidize their sale and use, including exemption from road-use taxes.)

Electronic Road-pricing Schemes

It is now possible to charge vehicles per mile of road use other than through the fuel tax. New technologies could be used to charge non-fuel-burning vehicles for road use, but there are reasons to consider use of these technologies even for all vehicles.

Transponders mounted in vehicles can be used to record a vehicle's passage past an antenna that functions as an electronic toll booth. Each vehicle could have an account that would be billed for the number of passages past certain points on the road network.

Global positioning receivers can be used to build an electronic record of a vehicle's movements. This record could be translated periodically into a bill for road use based on miles traveled and routes used.

With both these schemes, the price could vary with location and with hour of the day. A defect of the fuel tax is that it is not possible to vary the charge for road use according to demand. This is responsible in part for road congestion, as users have little incentive to make trips at off-peak hours. Discounts for off-peak travel have enormous potential for reducing the need for wider roads, but would only be possible with electronic toll systems.

FEDERAL HIGHWAY FUNDING

The federal Highway Trust Fund (HTF) was created by the Highway Revenue Act of 1956 (P.L. 84-627) primarily to ensure dependable financing for the Interstate system and also as the source of funding for the remainder of the Federal Aid Highway Program. The Highway Revenue Act provided that revenues from motor fuels and truck-related excise taxes would be credited to the HTF to finance a greatly-expanded highway program enacted in the Federal Aid Highway Act of 1956. Legislation has periodically extended the imposition of the taxes and their transfer to the HTF. Most recently, the Transportation Equity Act for the 21st Century (TEA-21) extended these taxes and their transfer to the HTF through September 30, 2005.

On average, each penny of the federal motor fuel tax produces $1.5 billion in revenues annually. Fuel taxes are by far the largest part of Highway Account income, constituting 83 percent of the account's revenue in Fiscal 1997. Since the establishment of the Trust Fund, more has been earned through tax receipts and interest income than has been spent. The Highway Account surplus of $23.0 billion at the end of Fiscal 1997 (the end of the previous authorization period) represented the cumulative effect of those spending controls over the life of the Fund.

In 1998, Congress enacted TEA-21, which made historic changes to the budgetary treatment of spending from the HTF. Highway spending is now directly tied to tax receipts into the Trust Fund, and reductions in Trust Fund spending can no longer be used to increase funding for other programs under domestic discretionary spending caps. The primary result of these changes has been a significant increase in federal funding for Michigan. Michigan will receive an average of $825 million per year over the six-year life of TEA-21, 61 percent more than was received during the six years of the 1991 highway act. While future federal funding levels are difficult to predict, it is likely that Michigan's federal funding will continue to rise in the future.

Short-term prospects for growth in federal funding are good. Both Michigan's and the national economy are likely to grow over the next five to ten years. Business and personal travel will grow, resulting in increased transportation revenues. As more people enter the work force and disposable income grows, so will vehicle ownership. As population continues to shift to rural and fringe suburban areas, work commutes will increase and so will personal trips for shopping, recreation, and other personal services. With the growing popularity of light trucks, fuel consumption will rise despite improvements in automotive fuel economy.

Long-term (15 to 20 years) estimates of future federal transportation funding are more difficult to make. Technological breakthroughs in vehicle efficiency or a shift to alternative technologies (electric, natural gas, hydrogen) could reduce fuel-tax revenues. Possible future oil embargos, recessions, or international conflicts in oil-producing countries could limit future supplies and

result in higher prices and less vehicle travel. While Michigan benefitted financially from TEA-21, future federal-aid legislation might not favor the state.

FEDERAL-AID FUNDING PROGRAM RESTRICTIONS

Federal Aid Eligibility

The National Functional Classification of a road determines its federal-aid status. Rural and urban interstates, other freeways, other principal arterials, and minor arterials, plus urban collectors and rural major collectors are the functional classifications which comprise federal-aid highways. Federal legislation provides that federal-aid highways are *eligible* (not guaranteed) to receive federal funding. In addition, TEA-21 allows up to 15% of a state's rural Surface Transportation Program (STP) obligational authority to be spent on rural minor collectors. However, rural minor collectors are not included in the definition of a federal-aid highway. Roads which have the functional classification of rural or urban local-access are not eligible for federal aid. A table of federal-aid-eligible road mileage is included on page 105.

Programmatic Restrictions

In addition to the restrictions placed on where federal-aid funds can be spent, federal law imposes a variety of requirements that federally-funded transportation projects must comply with prior to the approval and release of federal funds. These requirements and restrictions add significantly to the cost and the time required to complete a transportation improvement. Among the requirements are the following:

- Federal planning requirements — All projects must be included in an MPO's 3-year Transportation Improvement Plan (TIP), a metropolitan long-range plan, and/or a State Transportation Improvement Plan (STIP), and be consistent with a state's State Long Range Plan.

- Most categories of federal aid are available only to a state's highway agency. In Michigan, this is MDOT, which must administer federal-aid projects.

- All projects must comply with a wide range of federal environmental law, including National Environment Policy Act (NEPA), the National Historic Preservation Act, the Clean Air Act, and the Clean Water Act.

- Federal design and construction standards, right-of-way acquisition rules

- Highway safety requirements

- The Davis-Bacon Act (prevailing-wage law).

Federal Funding Restrictions

TEA-21 subdivides federal aid into several programs. Each state's federal-aid apportionment is divided into these categories and must be spent according to the restrictions established by each one. Congress allows a state to transfer a percentage of funds among categories.

The principal TEA-21 categories are the following:

- **The National Highway System Program** (NHS) provides funding for improvements to rural and urban roads that are part of the NHS, including the Interstate System and designated connections to major intermodal terminals. Under certain circumstances, NHS funds may also be used to fund transit improvements in NHS corridors.

- **The Interstate Maintenance (IM) Program** provides funding for resurfacing, restoring, rehabilitating, and reconstructing ("4R") Interstate System routes.

- **The Surface Transportation Program (STP)** provides flexible funding that may be used by States and localities for projects on any federal-aid highway, including the NHS, bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities. A portion of funds reserved for rural areas may be spent on rural minor collectors. TEA-21 requires that funds be set aside from the STP program for the following purposes:

  10 percent for safety improvements, including railway-highway crossings

  10 percent for the Transportation Enhancement program

  A set-aside for urbanized areas with populations more than 200,000

  A set-aside for rural areas with populations less than 5,000 allows 15% of these funds to be used on rural minor collectors.

- **The Highway Bridge Replacement and Rehabilitation Program (HBRRP)** provides funds to assist states to replace or rehabilitate deficient highway bridges. TEA-21 requires that a minimum of 15 percent of a state's apportionment be expended for bridge projects located on other than Federal-aid highways (off-system), with a maximum amount of 35 per cent

- **The Congestion Mitigation and Air Quality Improvement Program (CMAQ)** provides funds for projects and programs in air-quality non-attainment and maintenance areas for ozone, carbon monoxide (CO), and small particulate matter (PM-10) which reduce

transportation-related emissions. In Michigan, CMAQ funds can be spent in the Detroit, Grand Rapids, Holland and Muskegon metropolitan areas.

- **The Minimum Guarantee Program** provides funding to states based on equity considerations. These include specific shares of overall program funds and a minimum 90 percent return on contributions to the Highway Account of the Highway Trust Fund.

  Each state's share of the first $2.8 billion of Minimum Guarantee funds is administered as STP funds, except that requirements for the set-aside of funds for safety, enhancement, and the suballocation of funds to sub-state areas do not apply. (Michigan law further allocates part of this federal aid to be used on Economic Development Fund Category "C" and "D" projects on local roads.)

  Each State's share of the remainder is divided among certain programs—IM, NHS, Bridge, CMAQ, and STP—based on the share the state received for each program under the program formulas.

- **The Federal Lands Highways Program (FLHP)** provides funding for public roads and transit facilities serving federal and Indian lands.

- **The Recreational Trails Program** provides funds to develop and maintain recreational trails for motorized and non-motorized use.

- **The High Priority Projects Program** designates funding for specific projects (commonly referred to as demonstration or pork-barrel projects) selected by Congress. TEA-21 specifies 1,850 of these projects, each with a specified amount of funding over the 6 years of TEA-21. The designated funding can only be used for the project as described in the law.

- **The Metropolitan Transportation Planning Program** funding derives from a 1% takedown from the STP, Bridge, CMAQ, IM, and NHS Programs.

Every highway project funded under the NHS, IM, STP, and HBRRP programs must adhere to federal standards, which are published by the American Association of State Highway and Transportation Officials (AASHTO).

In addition to these categorical programs, TEA-21 establishes a variety of discretionary grant programs for which states and local agencies can compete. These programs are limited in scope and states must submit proposals that comply with the grant purposes and guidelines. Examples of discretionary grant programs include: the Border Infrastructure Program, the National Corridor Planning and Development Program, the Ferry Boat Program and the National Scenic Byways Program.

National Functional Classification and Federal Aid Highway Route Mileage					
National Functional Classification	**Federal Aid Road?**	**State Trunkline**	**County Roads**	**City Streets**	**All Roads**
		Mileage	**Mileage**	**Mileage**	**Mileage**
Rural Interstate	Yes	741	0	0	741
Rural Other Principal Arterial	Yes	2,747	15	0	2,762
Rural Minor Arterial	Yes	3,617	448	17	4,082
Rural Major Collector	Yes	585	15,973	431	16,988
Urban Interstate	Yes	500	0	0	500
Urban Other Freeway	Yes	222	0	0	223
Urban Other Principal Arterial	Yes	941	688	347	1,976
Urban Minor Arterial	Yes	339	1,747	1,321	3,406
Urban Collector	Yes	21	1,152	1,371	2,544
Rural Minor Collector	No*	0	6,161	69	6,229
Rural Local-access	No	14	55,860	2,987	58,860
Urban Local-access	No	0	7,130	13,957	21,088
Subtotal, Federal Aid Roads		9,711	20,023	3,487	33,221
Subtotal, Non-Federal Aid Roads		14	69,151	17,013	86,178
Grand Total Mileage		9,725	89,174	20,500	**119,399**

* Rural Minor Collectors are not federal aid highways but have limited eligibility for federal funding, per federal legislation, TEA-21.

Sources: Highway Performance Monitoring System data for June, 1999 and 1999 MDOT Sufficiency Report

THE PAST

MICHIGAN HIGHWAY FINANCE BEFORE ACT 51

Michigan's road finance system was developed in many pieces of legislation between 1893 and 1997. When the need for automobile roads became obvious in the years before World War I, new institutions were developed to meet an unprecedented need, and there was no guidance available on the best way to do the job. Between 1905 and 1951 there was considerable experimentation with revenue sources and road administration.

By 1931, Nineteenth-century township road administration had been abandoned, but it took another twenty years to find a sound financial base for the three-way system of state, county and municipal administration. Here is a chronology of the most important events.

Township Roads, 1850-1893

Roads were administered by townships in the decades before and after statehood. On the expectation that roads principally benefitted adjoining landowners, property owners were required to physically work on roads a number of days per year in proportion to property valuation, or to commute the labor requirement with a cash payment or the use of a team. Non-property-owning residents were also required to contribute a day's work per year, or the equivalent tax.

County Road Act, 1893

Recognizing that township roads connecting farms with trading centers did not provide good town-to-town and county-to-county transportation, the Legislature permitted any county to appoint or elect a county road commission to organize township roads into a system. Counties were authorized to levy road taxes of up to three mills on property, and to submit bond issues to voter approval. By 1905, five counties had road commissions, all in the northern part of the state.

Advisory Highway Commission, 1903

Under pressure from bicyclists, the Legislature appointed a committee to advise it on highway improvement. State Senator Horatio S. Earle, the principal voice of the Good Roads movement in Michigan, was appointed chairman. The committee recommended a Constitutional amendment permitting state aid to wagon roads. Earle was appointed Commissioner of Highways

and hired the first state highway engineer, but his appointment was declared unconstitutional. He continued to serve and lobby without pay.

State Reward Road Law, State Highway Department, 1905

With automobile owners beginning to demand roads, and over intense opposition from farmers, the Legislature created the State Highway Department in 1905 and instituted a state-reward-road system, and enacted a motor-vehicle registration law. The state reimbursed counties building gravel roads up to a state standard. There was no designated road system. Horatio Earle became the first Chairman of the Michigan Highway Commission. The number of counties with road commissions gradually increased. A $2.00 registration fee was charged on each car.

In 1909 the office of State Highway Commissioner was made elective.

In 1913 the Legislature established the first 3,000-mile trunkline system, subject to concurrence of local authorities. This gave local governments effective power to determine route locations.

Horsepower Tax, 1915

In 1915 a tax was imposed on motor horsepower of vehicles, the revenue to be used for highway purposes: $0.25 per horsepower for gas or steam cars and $1.00 for electric cars. (Early vehicle taxes in Europe and this country were based on “horsepower,” actually engine displacement.)

Weight Tax, First Formula, 1915

In 1915 a weight tax was imposed at $0.25 per hundredweight. Half of the total revenue went to the state, and half to counties and townships.

Road Property Taxes; Covert Act, 1915

This act regarded local roads as the responsibility of owners of benefitted property. It authorized property owners to initiate road construction by petition, but required land owners to pay at least half of the cost through special assessments.

Federal-aid Road Act of 1916

This law provided grants in aid of up to 50 percent of the cost of rural roads, with funds allocated among the states on the bases of area, population and road mileage. It established minimum design standards and required proper maintenance.

In 1917 the Michigan Legislature authorized an annual apportionment to match federal aid, and allowed counties and local governments to issue bonds to finance their share of the cost. This law established local participation in state road projects, requiring counties to pay a share ranging from 25 to 50 percent of the total cost, according to assessed valuation.

1919 Trunkline Bond Issue

A $50,000,000 bond issue was approved by voters. The Highway Commissioner was granted powers to initiate trunkline construction and take charge of construction costs to be shared by local and state government. Driver's license fees were instituted, and credited to the General Fund.

Federal-aid System, 1921

In 1921 the State Highway Department began to designate a federal-aid road system, as required by federal legislation of that year. Federal-aid mileage could not exceed seven percent of total rural mileage.

Gasoline Tax, 1925

A tax on gasoline of 2 cents per gallon was levied, with all revenue to the State Highway Department except for $2,000,000 per year for counties. Most states passed gasoline taxes around this time, and motorists were badly divided over the issue.

Another 1925 law relieved counties and townships of the obligation to contribute a share of the cost of federal-aid roads, with state government required to assume the entire responsibility of state match of 50 percent against federal aid.

The tax on engine horsepower was repealed. Weight was made the sole determinant of license fees.

First Three-way Formula; First Gasoline-tax Increase, 1927

A formula was instituted dividing state road revenues:

Cities: $2,000 per mile of trunkline
Counties: An amount equaling one half of weight taxes
State: The remainder

The gasoline tax was raised to 3 cents per gallon.

End of Township Roads; the McNitt Act, 1931

This act consolidated 68,000 miles of township roads into the 83 county road commissions, at the rate of one fifth of total mileage per year for five years.

Weight taxes were apportioned to counties on a pro rata basis according to county road mileage. A share of gasoline taxes was apportioned to counties: $2,000,000 in 1932 rising to $4,000,000 in 1936. It was gradually realized that this formula weighed lightly-traveled rural mileage the same as heavily-used urban mileage.

Dykstra Act, 1931

The state was permitted to pay up to 50 percent of the cost of trunklines in cities of over 50,000 and 100 percent in cities of less than 20,000.

End of Local Property Taxes for Roads: the Horton Act, 1932

This act drastically revised the distribution of state motor-vehicle-tax revenues, cutting the State Highway Department share in half. The entire proceeds of the weight tax were given to counties, plus $6,500,000 of the gasoline tax. Seven eighths of the weight tax was apportioned in proportion to weight-tax collections, and one eighth distributed equally to all 83 counties.

Remaining funds for the State Highway Department were apportioned for construction this way, after certain other obligations:

Upper Peninsula: 25 percent
Lower Peninsula north of town line 12: 25 percent
Lower Peninsula south of town line 12: 50 percent

(Town line 12 is about as far north as Saginaw.) This formula was intended to meet emergency conditions in the worst of the Depression, but became, “in effect a permanent allocation system. Successive amendments have merely added to the complexity of the law without making substantial changes to meet changing conditions,” according to an unpublished historical document, *circa* 1944.

Constitutional Protection of Motorist Fees, 1938

In 1938 a Constitutional amendment was approved restricting motor-vehicle-tax revenues to highway use. This provision was included in the Constitution of 1963, and amended to “transportation purposes” in 1978.

Limited-access Highways, 1941

In response to worsening traffic accidents and diminishing road capacity caused by roadside development, this law empowered state, county and municipal authorities to build roads not giving access to adjoining properties. The first freeways were constructed under this law.

Interstate Highway System, 1944

A 1944 federal act authorized a 38,000-mile system of Interstate highways. The Michigan Highway Department selected 978 miles in Michigan. No funds were appropriated for this system until 1956.

Diesel Fuel Tax, 1947

The growth of Diesel power for trucks required a 5-cent-per-gallon tax on Diesel fuel. All revenue, plus a $1.00 special operator's license fee, were credited to the State Highway Fund.

Michigan Turnpike Act, 1951

This law authorized construction of toll freeways in Michigan, on the pattern of turnpikes in Pennsylvania, Ohio and Indiana. This act was rendered unnecessary by creation of the federal Highway Trust Fund and the federal fuel tax of 1956, and was later repealed.

The gasoline tax rose to 4½ cents per gallon, and the Diesel tax to 6 cents.

CHANGES TO MICHIGAN TRANSPORTATION FINANCE SINCE 1951

Only minor amendments to the Act 51 formula shares were made for the first 26 years after 1951. The state trunkline share was increased slightly in 1957, to permit construction of the Interstate freeway system, and then reduced in 1972.

In 1978, the Comprehensive Transportation Fund was created to provide a permanent source of subsidy for transit systems and railroad operations. The CTF share started at 8.3 per cent of the MTF, and was soon increased to its Constitutional maximum of 10 per cent.

In 1987 the Economic Development Fund was created. Although not reflected in the statutory shares, the EDF had the effect of shifting some funds from the STF to local agencies.

In 1997, with the recent four-cent gas tax increase, the formula was changed to provide an amount equal to the tax increase to road agencies only, and not to the CTF. One cent of the increase is credited directly to the STF, and the remainder divided according to the three-way "external" formula.

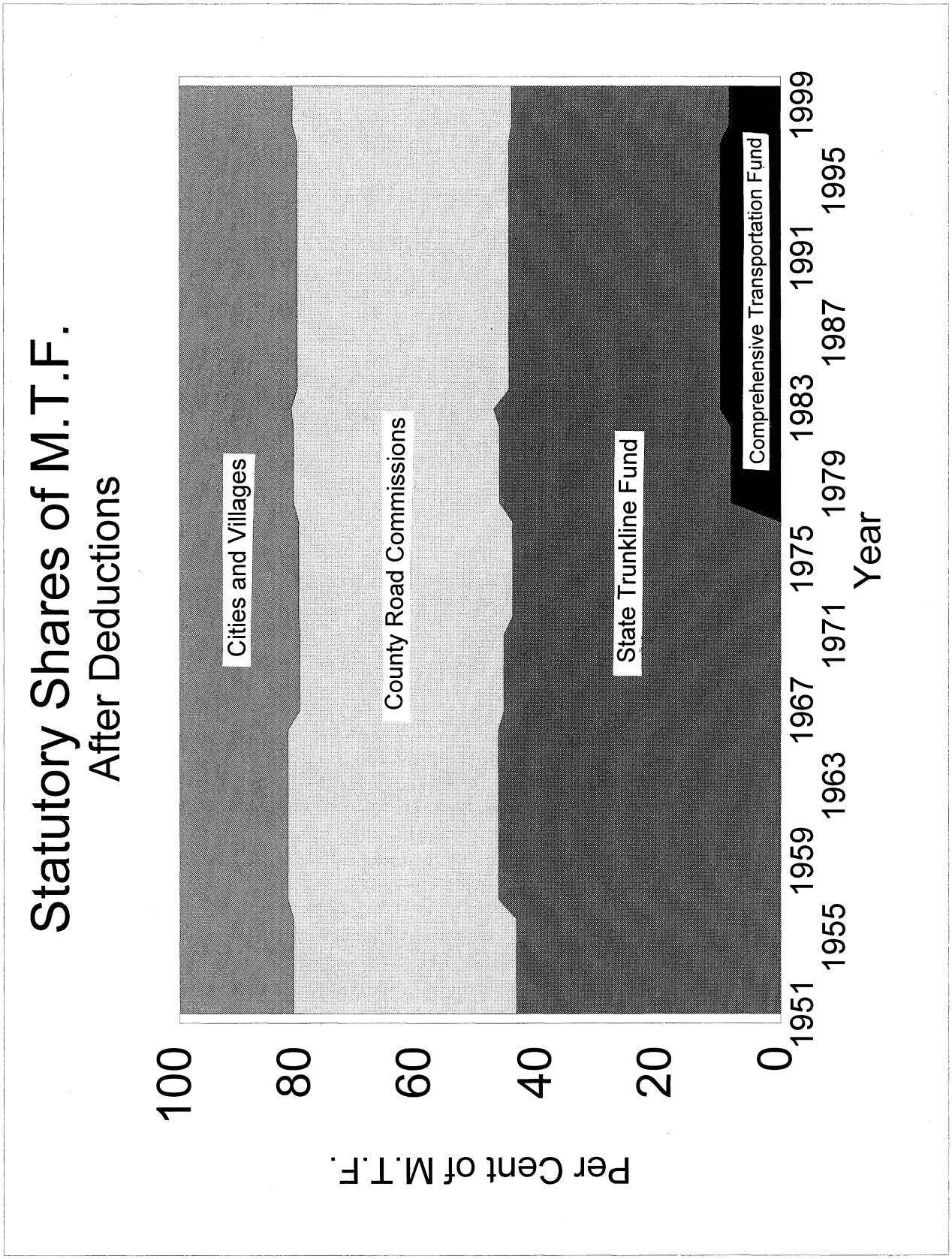
Major Changes to Percent Shares of the Michigan Transportation Fund

Year	State Trunkline Fund	County Road Commissions	Cities and Villages	Comprehensive Transportation Fund
1951	44	37	19	
1957	47	35	18	
1967	46	34	20	
1972	44.5	35.7	19.8	
1978	38.4	34.3	19	8.3
1983	37.7	33.7	18.6	10
1984	35.2	35.2	19.6	10
1997*	36.1	36.6	18.8	8.5

* The 1997 share is actual, including the 4-cents' gasoline-tax increase and the Economic Development Fund.

Graph 1 on page 113 illustrates the change in statutory shares of the MTF from 1951 through 1999.

Graph 1


Statutory Shares of M.T.F.
After Deductions
Cities and Villages
County Road Commissions
State Trunkline Fund
Comprehensive Transportation Fund
Per Cent of M.T.F.
100
80
60
40
20
0
1951
1955
1959
1963
1967
1971
1975
1979
1983
1987
1991
1995
1999
Year

Intentionally Blank

THE FUTURE

TRENDS IN MICHIGAN'S MAJOR ECONOMIC SECTORS

No analysis of the distribution of the future transportation revenues could be complete without some consideration of anticipated demographic and economic trends which will affect transportation.

Demographic Forecast

Distribution of the population into age and geographic categories is an important tool in gauging travel demand. There are three main issues regarding Michigan's demographic forecast. First is that the fastest-growing segment of the population over the next 25 years is the 55-years-of-age-and-over population. Second, the service and retail sectors will continue to be the fastest growing part of the economy. Finally, there is the trend of major cities growing together in corridors.

In Michigan, as nationally, one of the dominant demographic trends is the increase in the over-55 population. This can have a noticeable impact on travel demand in the future. A related issue will be on the number of seasonal residents, creating capacity problems in certain areas at certain times of the year. The aging population also has implications for signing, safety, and transit.

Economically, Michigan is similar to the rest of the United States in that the fastest-growing sectors of the economy are the service and retail sectors. Unlike manufacturing, Michigan's traditional economic base, the service industry is not tied to urban areas. In addition, many jobs in both the service and retail industries do not pay as high salaries as manufacturing.

In Michigan and throughout the United States, there is an increase in urban growth along corridors. In the Detroit area, expansion is filling in the areas toward Ann Arbor, Brighton, Flint and Port Huron. The Interstate, freeway and non-freeway systems in these areas may need to be expanded to accommodate the resulting increases in traffic. The highest-growth corridor in the state is the I-96 corridor from Detroit to Grand Rapids. This trend will require that freeway renovation be done with future capacity needs also in mind.

Demographic issues play a large part in transportation planning. Factors such as population age, economic sectors and urban growth patterns all impact the demands on the transportation system. Considering these issues now helps to insure that decision making in the future will utilize transportation revenues most effectively.

Manufacturing and Transportation

In 1995, 960,243 people, or one of every five employees in Michigan, were employed by a manufacturing establishment. Of Michigan's 16,781 manufacturing establishments, 63 percent employed 19 people or less; 27 percent employed 20-99; 9 percent employed between 100 and 499; and 1 percent had 500 or more employees. Total annual payroll of these manufacturing establishments was $41 billion.

Automobile manufacturing dominates the Michigan manufacturing landscape. The largest manufacturing segment was transportation equipment, about a third of all manufacturing employment in Michigan. The next-largest segments were fabricated metal products and industrial machinery and equipment, each with 13 percent of manufacturing employees. These three categories fall under durable goods, which make up three-quarters of Michigan's manufacturing employment; the remaining quarter were employed in the manufacture of non-durable goods.

Manufacturing employment is concentrated in southern Michigan, and forecasts indicate that pattern will continue. Statewide, forecasts indicate that manufacturing employment will decrease between 1995 and 2020; Regional Economic Models, Inc., (REMI) forecast that manufacturing's share of total employment will decrease from about 20 percent to about 15 percent. Offsetting these decreases are projected increases in lower-paying service occupations, from 28 percent of total employment to 35 percent.

In preparing this paper, the Michigan Economic Development Corporation (MEDC) and the Michigan Manufacturers Association (MMA) were contacted to learn industry's long-term transportation concerns[3]. The MMA's first concern was whether Michigan is planning for "Smart Highways." MMA believes that in order to remain the "auto capital," Michigan should promote coordination between high-technology suppliers and automobile manufacturers, assuring efficient interchange of manufacturing and shipping data, as well as finished goods. Another concern was the effect of manufacturing globalization on transportation, particularly relative to cross-border movement of goods. The MMA was also concerned about the reliability of the system, as manufacturing moves to more and smaller firms, and just-in-time inventory management continues to generate more and smaller loads. The final concern of the MMA was updating the toll booths at the Mackinac Bridge.

[3] Phone interviews were conducted with Jim Donaldson, Director of Michigan Business Development for the Michigan Economic Development Corporation, (517) 373-0309, and Charles E. Hadden, Vice President-Govt Affairs for the Michigan Manufacturers Association, (517) 487-5900.

The Michigan Economic Development Corporation echoed the MMA's concern about globalization and the "modularization" of the automobile manufacturing industry. Under this scheme, there will be more deliveries of modular components to assembly plants, and an increase in the number of trucks going to and from the assembly plants. The MEDC also indicated they foresee less rail used to serve the automobile manufacturing industry, and therefore an increase in the number of car carriers on the road. Rail was rarely requested by firms looking to locate in Michigan; only for the very largest manufacturing plants. The final issue mentioned by MEDC was the ability of manufacturers to get their workforce to work. Roadway congestion, particularly in several technical corridors (I-275, the area around I-96 at M-14, I-696 at Farmington and Farmington Hills, and along I-75 from Troy to Auburn Hills and northward) was an issue. There are concentrations of engineering centers in those areas that serve the automobile industry and firms believe they must locate in this area to be accessible to their customers and to be competitive.

Because most manufacturing industries are moving toward inventory management systems which rely on just-in-time shipping, anything transportation providers can do to increase system efficiency and reliability will be helpful. Reducing congestion, providing drivers with instant information on road conditions, congestion, and delays, and managing incidents on major corridors are vital to a continued thriving manufacturing economy. Other elements that will support manufacturing are the continued integration of technology with the transportation system, and working with US and Canadian Customs to institute more efficient cross-border inspection procedures.

Agriculture and Transportation

Michigan's agricultural economy is valued at approximately $35 billion overall. While food and agriculture is Michigan's second most important industry in economic terms, it is the state's most stable, employing over 200,000 every year. In fact, in 1998, Michigan led the nation in the production of nine commodities: dry black beans, dry cranberry beans, bedding petunias, blueberries, tart cherries, cucumbers for pickling, geraniums, flowering hanging baskets and niagra grapes. In addition, 44 Michigan crops rank in the top 10 nationally.

Michigan sends an estimated 60 percent of its crops out of state for processing. A variety of agricultural shippers contacted by the Michigan Department of Transportation (MDOT) staff indicate that delays due to construction and untimely snow removal were their chief transportation concerns. Snow removal was particularly important to the dairy industry, as their vehicles travel year-round.

The need for an expanded all-season network was also an important issue. Although most agricultural shippers stated that they have learned to live with spring weight restrictions, there is some additional cost to them during the time period that the weight limits are in effect. An all-

season network is especially important to dairy haulers who travel straight from farms to production plants, many of which are not located on all-season routes.

The Michigan Department of Agriculture provides the following estimates of agricultural production:

Michigan Agricultural Production

Agricultural Industry	Total # of farms (1999)	Total land	Average Size	Total Value of land & bldgs. (1997 Ag. Census)
Michigan Farms	53,000	10.4 M acres	200 acres	$16.5 billion

Agricultural Products	Production level	Livestock	Total # of head
Field crops, Fruits & Vegetables	18.50 M tons	**Cattle and Calves**	1.05 M
Commercial Fertilizer	1.33 M tons	**Sheep and Lambs**	.062 M
Milk Production	2.7 M tons	**Hogs and Pigs**	1.1 M
Floriculture	235.3 M	**Hens and Pullets**	6.74 M

	Crop	Animal	Services & Forestry	Net farm income	Total Value Added
Final output (1998)	$2,158 M	$1,323 M	$449 M	$308 M	$3,930 M

Notes: Except for the item, "Total Value of land & bldgs.," the source for the information in the above set of tables is: Michigan Agricultural Statistics 1998/99. The source for the item "Total Value of land & bldgs." is the 1997 Agricultural Census, USDA. M stands for million.

Loss of agricultural land to urban sprawl is an issue in Michigan and the entire US; USDA and Michigan Department of Agriculture are working to preserve existing farmland. As farms get larger and more efficient, agricultural production continues to either grow or keep pace with previous production levels, and will probably exist near the same tonnage levels in 2020.

Travel, Tourism and Transportation[4]

Michigan has an abundance of attractive natural features, including 3,308 miles of Great Lakes shoreline, 36,350 miles of rivers and streams, 1 million acres of inland water, more than 19 million acres of forest land, almost 300,000 acres of designated wilderness land, 71,000 acres of

[4]The main source of information for this section is *"The Michigan Travel and Tourism Statistical Handbook 1998"*, prepared by Travel Michigan of the Michigan Jobs Commission. Other information was supplied by the Travel, Tourism, and Recreation Resource Center at Michigan State University.

critical sand dunes, and 79 natural heritage sites. In addition, Michigan ranks second nationally in the number of second homes with 215,863. Seasonal homes account for 12 percent of all Michigan tourism spending, but in some counties, tourism spending associated with second homes is as much as 75 percent or more of the counties' tourism dollars.

Domestic Travel

Michigan is one of the leading travel destinations in the country. It was the sixth largest travel state in the U.S. with more than 34 million domestic person-trips taken to or in the state in 1995. Ninety-five percent of these trips were by automobile. About 71 percent were vacation or pleasure trips. There were 22 million person-trips taken by Michigan residents in 1995 (63 percent of total person-trips in 1995.) Other Great Lakes States accounted for another 22 percent of the trips.

The total economic impact of domestic travelers on Michigan's economy was $9 billion in 1995, or an average of *$24.7 million per day*. Public transportation (including airlines and taxi cabs) derived the most benefit with 25 percent of domestic travel expenditures, auto transportation and food service, each with about 23 percent of expenditures, and lodging with 14 percent of domestic travel expenditures.

Domestic travelers to Michigan supported 127,300 jobs. Public transportation had the greatest level of expenditures, but domestic travel expenditures supported the most jobs in food services, accounting for 37 percent of 1995 domestic travel-generated employment in Michigan. Next were lodging and public transportation, with 20.5 percent and 17.4 percent, respectively.

International Travel

Also in 1995, 1.8 million international person-trips resulted in $647 million of international travel expenditures in Michigan. Canadian travelers accounted for $162.1 million (25 percent) of the total, with all other international travelers responsible for the remaining $484.6 million (75 percent). Michigan's market share of all overseas travelers to the United States was 1.8 percent, with 363,000 overseas arrivals. Expenditures of international travelers supported 971,200 jobs in 1995, with two-thirds of those jobs in lodging and food service.

Seasonality

Most travel in Michigan occurs in warmer weather months. July and August account for 32 percent of the trips. Sixteen percent of Michigan travel occurs in each of the two periods September/October and May/June. This concentration of travel during more temperate months can create roadway congestion, particularly where there are slower-moving recreational vehicles and in small towns near major attractions.

Trip Characteristics

Travelers visiting friends and relatives accounted for 36.5 percent of all trips to Michigan in 1995. The second most-cited reason was business (18 percent) and third was rest and relaxation (17.7 percent). Compared to national statistics, Michigan has a larger percentage of travelers for rest and relaxation and outdoor recreation, and a smaller percentage of travelers for the purposes of business, entertainment, sightseeing, and personal business.

The average length of stay for Michigan travelers in 1995 was 4.3 nights, with the average expenditure per person per trip totaling $251. For domestic travel, Michigan residents spent an average of $169 per person trip, while non-residents averaged $343 per person per trip. Canadian travelers spent an average of $122 per trip per person, whereas overseas travelers to Michigan averaged $1,337 per person per trip.

Transportation Needs of Travel and Tourism

In a recent paper, *An Analysis of Michigan's Image as a Tourist Destination*[5], scenery was mentioned second only to water-related features as contributing to a positive impression of Michigan as a pleasure trip destination, and scenery is viewed most often from the automobile. In fact, 63 percent of all trips to and in Michigan included general touring or driving for pleasure. The same research paper found that two of the most frequently mentioned negative impressions of the state were "roads/infrastructure" and "traffic."

Because 95 percent of travel to and in Michigan is by automobile, the condition and level of service of our trunkline system will continue to be important to this industry, since the dominant mode will continue to be the automobile. Based on results from the "Image"survey cited above, Michigan travel and tourism will continue to benefit from improved road conditions and efforts to reduce congestion. Providing up-to-the-minute traffic updates will allow travelers to make adjustments to travel plans, possibly avoiding delays.

Strong preferences for outdoor recreation, natural attractions and scenic travel routes will perpetuate automobile travel. Improving access without compromising the appeal of natural and historical attractions will be an on-going challenge.

Air service will continue to be more important for tourist destinations in southern lower Michigan. Population and attractions are more concentrated in this part of the state, there are

[5]Spotts, Daniel M., Dae-Kwan Kim, James A. Carr, and Donald F. Holecek. 1998. "An Analysis of Michigan's Image as a Tourist Destination." Proceedings at the 29th Annual Conference of the Travel and Tourism Research Association, Fort Worth, Texas, June 1998.

more year-round attractions, and attractions are more accessible by means other than the private automobile.

Service Industries and Transportation

Service is the biggest sector of Michigan's employment (28.4 percent in 1995) and the fastest growing. Services includes lodging, personal, business, automotive, motion picture, amusement & recreation, health, legal, educational, social, and engineering & management. It is comprised of nearly 80,000 establishments employing nearly 1.2 million people with an annual payroll of $29.2 million. Of these, health services (32.8 percent) and business services (21.0 percent) constitute over half of the sector's employment. Nearly 89 percent of the services establishments employ less than 20 persons.

Service businesses depend heavily on high-quality highway service. Even for service firms whose products are intangible or shipped to customers electronically, highway service can be crucial. Key issues include labor force access, business trip making, and customer access.

- *Labor Force Access*. Providers of business services compete for the best-qualified professionals, and workers' choice of employers is often influenced by the employer's location. Inaccessible employers will have difficulty attracting the best people. Difficult commuter trips have been cited as a factor in the out migration of some employers from the most active service-sector employment markets. The market for high-quality office space could be described as "a search for highway capacity," as developers generally seek places where speedy, convenient work trips are possible. Office space reachable only by slow, congested routes may be unmarketable.

- *Business Tripmaking*. Other services depend on travel over the system by workers on the job. Fast travel contributes directly to the productivity of delivery services, couriers, and repair technicians. For any worker in the skilled trades, time spent traveling to the next job is a direct subtraction from earnings. Also, regarding medical services, mobile MRI and scanning equipment which is loaded on a modified recreation vehicle and taken into communities cannot travel on rough roads without danger of being damaged by the vibration.

- *Customer Access*. Reasonable travel times to the service center for customers is of paramount importance. At the same time, some services are coming to the customer. The Michigan Health and Hospital Association noted the trend of services that used to be located at hospitals being increasingly offered in homes, at the work site, and in independent outpatient facilities. This is markedly improving access for those patients unable to travel long distances for treatment.

Service employment will grow by 36.2 percent between now and 2020. While this growth will occur throughout the state it concentrates on the urbanized areas, most noticeably the Detroit and Grand Rapids metropolitan areas. In the northern Lower Peninsula, service employment growth focuses on communities such as Alpena, Gaylord, Grayling, Petoskey, and Traverse City. In the Upper Peninsula, most of the growth will occur in the Marquette-Escanaba-Menominee Corridor and the easternmost portion of the peninsula.

Retail and Wholesale Trade and Transportation

Retail Trade

There are some 55,000 retail trade establishments in Michigan employing over 797,000 persons resulting in an annual payroll of $11 million. Eating and drinking places and automotive dealers and service stations each generate a payroll of more than $2 million, followed by general merchandise stores and food stores with payrolls of $1.3 million and $1.2 million respectively. Nearly 83 percent of these establishments employ less than 20 persons with another 15 percent having 20 to 100 employees. Eating and drinking places employ the most people in the retail trade sector, somewhat more than one-third (35.2 percent) of this sector's employment. It is followed by general merchandise stores (16.1 percent), food stores (13.4 percent), and auto dealers & service stations (10.4 percent).

Key issues include electronic commerce, driveway access, and signing.

- *Electronic Commerce.* According to the Michigan Retailers Association (MRA), electronic commerce is on the rise, but not to the extent that it is overtaking traditional retail as common carrier and package car deliveries are also rising.
- *Driveway Access*. The MRA notes that retailers want direct access to the road system, but local governmental units want to consolidate driveways to ease congestion and improve safety.
- *Logo Signing*. Service station dealers indicate that the industry likes them as customer response has been phenomenal; those without them believe they are at a competitive disadvantage.

Between now and 2020, retail trade employment will grow by 6.6 percent. This growth will occur throughout the state although several urbanized areas will experience a decline. These consist of Detroit, Flint, Muskegon and Benton Harbor. The largest growth areas are as follows: (1) Marquette and easternmost portion of the upper peninsula (east of a line defined by Sault Ste. Marie and St. Ignace); (2) Alpena, Gaylord, Grayling, Petoskey, Traverse City in the northern lower peninsula; (3) Ann Arbor, Brighton, Battle Creek, Grand Rapids, Jackson, Kalamazoo and Lansing, and Macomb and Oakland counties in the southern lower peninsula.

Wholesale Trade

There are over 15,700 wholesale trade establishments in Michigan employing 215,000 persons resulting in an annual payroll of over $8 million. Approximately 84 percent of these establishments are operated by less than 20 employees. Durable goods account for 61 percent of this employment, nearly one-quarter of which are motor vehicle parts and supplies; nondurable goods for the remainder, nearly half of which are groceries and related products.

One key issue is consolidation.

- *Consolidation*. The consolidation of bottling plants and distribution centers is more efficient for the soft drink industry. However, this requires more time on the roads, so road condition and congestion are important to them. When possible, they try to "skirt" the peak travel periods when making deliveries to avoid congestion.

Wholesale trade employment will increase by 5.2 percent between now and 2020. Most of this growth will occur in the southern half of the Lower Peninsula with much of Michigan experiencing a decline in wholesale trade employment. Specifically, the growth will concentrate in urbanized areas, especially the Detroit, Grand Rapids and Kalamazoo metropolitan areas.

BORDER CROSSINGS AND INTERNATIONAL TRADE

Background

US-Canada free trade has a long and prosperous history. It began with the Auto Pact of 1965, an agreement which first established limited bilateral duty-free trade between the United States and Canada, and continued in 1989 with the US-Canada Free Trade Act, creating the world's largest free trading bloc between the world's largest trading partners. The North American Free Trade Agreement (NAFTA) refined US-Canada free trade, and added Mexico as a free-trade partner.

How strong is the US-Canada partnership? Canada now sells over one third of its Gross Domestic Product in the American market place. The USA takes over 82% of Canadian exports and Canada is a larger export market for US goods than either the European Union of 15 countries or Japan.

Over 42% of all US-Canada trade moves across the border at a Michigan-Ontario crossing. The automobile industry accounts for more than 2/3rds of the more than $100 billion in trade crossing Michigan's international borders annually.

The borders are considered part of the supply chain for automobile manufacturers and suppliers. Parts and products move freely across the border, arriving at the assembly plants "just in time" for use. This reduces inventory costs, but places a premium on time.

There are 10 surface border crossings between Michigan and Canada, representing several modes. The overall trend has been an increase in traffic, with truck traffic climbing more rapidly than automobile traffic. The table on page 125 lists the crossings and provides traffic volumes where available. Figure 1 (page 126) portrays cross-border vehicle traffic over time.

Over time, truck traffic has become a larger proportion of the traffic stream (Figure 2, page 126). This is significant because trucks tend to place a greater demand on border infrastructure and inspection personnel.

Although a large amount of international trade is handled by Michigan ports, less than 2% of the cargo handled at Michigan ports is shipped to or from an *overseas* port. While Michigan business and industry generate a large volume of overseas trade, most of it is transported overland by truck or rail to coastal ports for ocean shipping.

All indications are that Michigan's international trade and traffic will continue to rise. The challenge to the transportation industry is to keep the traffic moving by anticipating and providing adequate border crossing capacity. Since capacity can be influenced not only by the physical infrastructure, but also by toll collections, inspection services procedures, and Intelligent Transportation Systems, all these facets must be followed closely. Trends in the transportation and logistics industries must be anticipated to stay "ahead of the curve" in meeting the changing transportation needs of international trade and traffic.

Michigan Border Crossings with Canada

Crossing Name	Location	Mode(s)	Year	Bi-directional Volume
Ambassador Bridge	Detroit	Automobile Trucks	1998 1998	8,609,000 2,993,000
Detroit-Windsor Tunnel	Detroit	Automobiles Trucks	1998 1998	9,138,000 241,271
Blue Water Bridge	Port Huron	Automobiles Trucks	1998 1998	3,840,000 1,351,000
International Bridge	Sault Ste. Marie	Automobiles Trucks	1998 1998	2,730,000 140,410
Detroit-Windsor Truck Ferry	Detroit	Trucks	1998	n/a
Marine City-Sombra Ferry	Marine City	Automobiles Trucks	1998	n/a
Algonac-Walpole Island Ferry	Algonac	Automobiles Trucks	1998	n/a
Detroit-Windsor Rail Tunnel	Detroit	Rail cars	1997	400,000
St. Clair River Tunnel	Port Huron	Rail cars Rail passengers	1997 1997	570,000
Wisconsin Central Bridge	Sault Ste. Marie	Rail cars	1997	40,000

Figure 1: Michigan Border Crossing Volumes 1988-1998

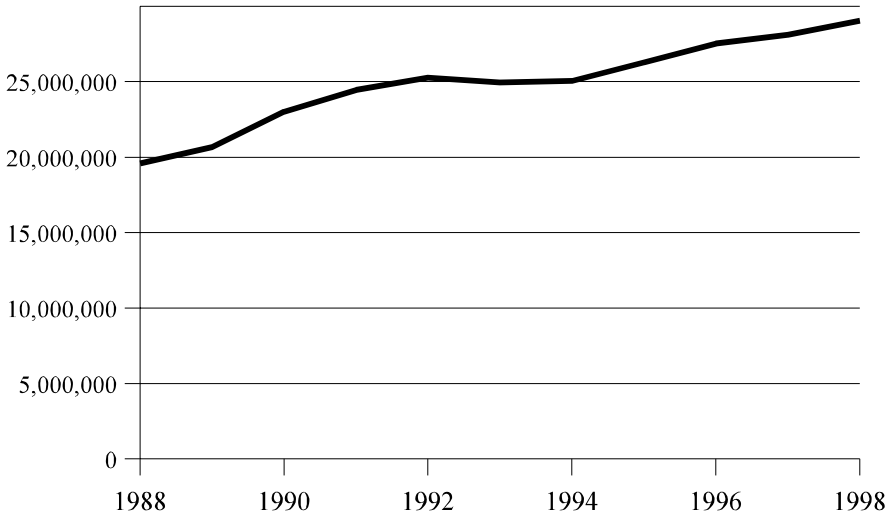


Figure 2: Trucks as a Percent of Cross-Border Traffic